

CLAIMS

What is claimed is:

1. An amylin family peptide comprising a loop region of amylin and analogs thereof; an α helix region of at least a portion of an α helix region of calcitonin or analogs thereof and an α helix region of a calcitonin or analogs thereof.
2. The peptide of claim 1 wherein the amylin is a human amylin and analogs thereof.
3. The peptide of claim 1 wherein the calcitonin is a salmon calcitonin.
4. The peptide of claim 2 wherein the calcitonin is salmon calcitonin.
5. The peptide of claim 1 comprising an amino acid sequence of formula I
Xaa₁ X Xaa₃
Xaa₄ Xaa₅ Xaa₆ Y Xaa₈ Xaa₉ Xaa₁₀ Xaa₁₁ Xaa₁₂ Xaa₁₃ Xaa₁₄ Xaa₁₅ Xaa₁₆ Xaa₁₇
Xaa₁₈ Xaa₁₉ Xaa₂₀ Xaa₂₁ Xaa₂₂ Xaa₂₃ Xaa₂₄ Xaa₂₅ Xaa₂₆ Xaa₂₇ Xaa₂₈ Xaa₂₉
Xaa₃₀ Xaa₃₁ Xaa₃₂ (SEQ ID NO:34) wherein
Xaa₁ is A, C, hC, D, E, F, I, L, K, hK, R, hR, S, Hse(homoSER), T, G, Q, N, M, Y, W, P,
Hyp(hydroxyProline), H, V or absent;
Xaa₃ is A, D, E, N, Q, G, V, R, K, hK, hR, H, I, L, M, or absent;
Xaa₄ is A, I, L, S, Hse, T, V, M, or absent;
Xaa₅ is A, S, T, Hse, Y, V, I, L, or M;
Xaa₆ is T, A, S, Hse, Y, V, I, L, or M;
Xaa₈ is A, V, I, L, F, or M;
Xaa₉ is L, T, S, Hse, V, I, or M;
Xaa₁₀ is G, H, Q, K, R, N, hK, or hR;
Xaa₁₁ is K, R, Q, N, hK, hR, or H;
Xaa₁₂ is L, I, V, F, M, W, or Y;
Xaa₁₃ is A, F, Y, N, Q, S, Hse, or T;
Xaa₁₄ is A, D, E, G, N, K, Q, R, H, hR, or hK;
Xaa₁₅ is A, D, E, F, L, S, Y, I, V, or M;
Xaa₁₆ is L, F, M, V, Y, or I;
Xaa₁₇ is H, Q, N, S, Hse, T, or V;
Xaa₁₈ is K, hK, R, hR, H, u (Cit), or n (Orn);
Xaa₁₉ is F, L, S, Hse, V, I, T, or absent;
Xaa₂₀ is H, R, K, hR, hK, N, Q, or absent;
Xaa₂₁ is T, S, Hse, V, I, L, Q, N, or absent;
Xaa₂₂ is F, L, M, V, Y, or I;
Xaa₂₃ is P or Hyp;
Xaa₂₄ is P, Hyp, R, K, hR, hK, or H;
Xaa₂₅ is T, S, Hse, V, I, L, F, or Y;
Xaa₂₆ is N, Q, D, or E;

Xaa27 is T, V, S, F, I, or L;
Xaa28 is G or A;
Xaa29 is S, Hse, T, V, I, L, or Y;
Xaa30 is E, G, K, N, D, R, hR, hK, H, or Q;
Xaa31 is A, T, S, Hse, V, I, L, F, or Y; and
Xaa32 is F, P, Y, Hse, S, T, or Hyp;

wherein X and Y are capable of creating a bond and are independently selected residues having side chains which are chemically bonded to each other to form an intramolecular linkage such as disulfide bonds; amide bond; alkyl acids and alkyl amines which may form cyclic lactams; alkyl aldehydes or alkyl halides and alkylamines which may condense and be reduced to form an alkyl amine or imine bridge; or side chains which may be connected to form an alkyl, alkenyl, alkynyl, ether or thioether bond.

6. The peptide of claim 5 wherein X and Y from an intramolecular linkage of a disulfide, amide, imine, amine, alkyl and alkene bond.
7. The peptide of claim 5 further comprising 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, modifications of substitutions, insertions, deletions, elongations and/or derivatizations.
8. The peptide of claim 1 comprising an amino acid sequence of formula II: Xaa1 Xaa2 Xaa3 Xaa4 Xaa5 Xaa6 Xaa7 Xaa8 Xaa9 Xaa10 Xaa11 Xaa12 Xaa13 Xaa14 Xaa15 Xaa16 Xaa17 Xaa18 Xaa19 Xaa20 Xaa21 Xaa22 Xaa23 Xaa24 Xaa25 Xaa26 Xaa27 Xaa28 Xaa29 Xaa30 Xaa31 Xaa32 (SEQ ID NO:35) wherein
Xaa1 is A, C, D, F, I, K, S, T, or absent;
Xaa2 is C, D, S, or absent;
Xaa3 is A, D, N, or absent;
Xaa4 is A, L, T, or absent;
Xaa5 is A or S;
Xaa6 is T, A, S, or V;
Xaa7 is C, K, or A;
Xaa8 is A, V, L, or M;
Xaa9 is L or T;
Xaa10 is G, H, or Q;
Xaa11 is K, R, Q, or hArg;
Xaa12 is L, W, or Y;
Xaa13 is A, F, N, Q, S, or T;
Xaa14 is A, D, E, G, N, K, Q, or R;

Xaa15 is A, D, E, F, L, S, or Y;
Xaa16 is L, or F;
Xaa17 is H, Q, S, or V;
Xaa18 is K, R, hArg, u (Cit), or n (Orn);
Xaa19 is F, L, S, or absent;
Xaa20 is H, Q, or absent;
Xaa21 is T, N, or absent;
Xaa22 is F, L, M, V, or Y;
Xaa23 is P;
Xaa24 is P or R;
Xaa25 is T;
Xaa26 is N;
Xaa27 is T or V;
Xaa28 is G;
Xaa29 is S;
Xaa30 is E, G, K, or N;
Xaa31 is A or T; and
Xaa32 is F, P, or Y.

9. The peptide of claim 8 further comprising 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, modifications of substitutions, insertions, deletions, elongations and/or derivatizations.

10. The peptide of claim 1 comprising an amino acid sequence of formula III: Xaa1 Xaa2 Xaa3 Xaa4 Xaa5 Xaa6 Xaa7 Xaa8 Xaa9 Xaa10 Xaa11 Xaa12 Xaa13 Xaa14 Xaa15 Xaa16 Xaa17 Xaa18 Xaa19 Xaa20 Xaa21 Xaa22 Xaa23 Xaa24 Xaa25 Xaa26 Xaa27 Xaa28 Xaa29 Xaa30 Xaa31 Xaa32, (SEQ ID NO:36) wherein

Xaa1 is A, C, F, I, K, S, or absent;
Xaa2 is C, D, or S;
Xaa3 is A, D or N;
Xaa4 is A, L or T;
Xaa5 is A or S;
Xaa6 is T;
Xaa7 is C or K;
Xaa8 is A or V;
Xaa9 is L or T;
Xaa10 is G, H, or Q;
Xaa11 is K, R, or hArg;
Xaa12 is L;
Xaa13 is A, F, N, S, or T;
Xaa14 is A, D, E, G, N, Q, or R;
Xaa15 is A, E, F, L, S, or Y;

Xaa16 is L;
Xaa17 is H, S, or V;
Xaa18 is K, R, hArg, u (Cit), or n (Orn);
Xaa19 is F, L, or S;
Xaa20 is H or Q;
Xaa21 is T or N;
Xaa22 is F, L, M, V, or Y;
Xaa23 is P;
Xaa24 is P or R;
Xaa25 is T;
Xaa26 is N;
Xaa27 is T, or V;
Xaa28 is G;
Xaa29 is S;
Xaa30 is E, G, K, or N;
Xaa31 is A, or T; and
Xaa32 is F, P, or Y.

11. The peptide of claim 11 further comprising 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, modifications of substitutions, insertions, deletions, elongations and/or derivatizations.
12. An amylin family peptide comprising a sequence of SEQ ID NO:40 to 137.
13. The peptide of claim 12 wherein the peptide has at least 95% sequence identify to SEQ ID NO:40 to 137.
14. A method of treating eating disorders, insulin-resistance, obesity, abnormal postprandial hyperglycemia, diabetes of any kind, including Type I, Type II, and gestational diabetes, Metabolic Syndrome, Dumping Syndrome, hypertension, dyslipidemia, cardiovascular disease, hyperlipidemia, sleep apnea, cancer, pulmonary hypertension, cholecystitis, and osteoarthritis comprising the peptide of claim 1.
15. A method of treating eating disorders, insulin-resistance, obesity, abnormal postprandial hyperglycemia, diabetes of any kind, including Type I, Type II, and gestational diabetes, Metabolic Syndrome, Dumping Syndrome, hypertension, dyslipidemia, cardiovascular disease, hyperlipidemia, sleep apnea, cancer, pulmonary hypertension, cholecystitis, and osteoarthritis comprising the peptide of claim 5.

16. A method of treating eating disorders, insulin-resistance, obesity, abnormal postprandial hyperglycemia, diabetes of any kind, including Type I, Type II, and gestational diabetes, Metabolic Syndrome, Dumping Syndrome, hypertension, dyslipidemia, cardiovascular disease, hyperlipidemia, sleep apnea, cancer, pulmonary hypertension, cholecystitis, and osteoarthritis comprising the peptide of claim 8.
17. A method of treating eating disorders, insulin-resistance, obesity, abnormal postprandial hyperglycemia, diabetes of any kind, including Type I, Type II, and gestational diabetes, Metabolic Syndrome, Dumping Syndrome, hypertension, dyslipidemia, cardiovascular disease, hyperlipidemia, sleep apnea, cancer, pulmonary hypertension, cholecystitis, and osteoarthritis comprising the peptide of claim 12.